

DYNAMIC ANOMALOUS PIXEL DETECTION AND CORRECTION

ABSTRACT OF THE DISCLOSURE

A method and a system for dynamically detecting and correcting anomalous pixels in the raw data taken from an image sensor array such as a CCD or a CMOS sensor array, thus allowing the use of dumb cameras to capture digital images for subsequent use by an intelligent host – such as being displayed on a computer monitor. This invention uses software algorithms running on an intelligent host processor to dynamically correct the anomalous pixels in the raw data taken from an image sensor array typical of those in a digital still or a video camera. Using the combination of a dumb camera which provides raw data to an intelligent host, which does all the subsequent image processing, the system works by scanning an image frame for pixels that vary more than a specified amount in their brightness value from their neighboring pixels and designating those as defective pixels. The location and frequency of the photosites sending the defective pixels are stored in a statistical database in the computer's memory. The brightness value of a defective pixel is then replaced by a local brightness value obtained from the defective pixel's neighboring pixels. The process includes video subsampling, meaning that the defective pixel detection is carried out and repeated at a pre-specified frame rate to ensure optimum detection and correction at a minimal level of scanning. A statistical database is kept so that truly anomalous pixels can over time be distinguished from false detection of true anomalies in the target image, lighting or other environmentally induced anomalies.